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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,971	02/20/2002	Shunpei Yamazaki	07977-303001	2205

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EXAMINER
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MULPURI, SAVITRI

ART UNIT	PAPER NUMBER
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2812

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/23/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/081,971	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Savitri Mulpuri	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-11, 19, 20, 24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20 and 51-54 is/are allowed.
- 6) ☒ Claim(s) 1-11, 19, 24-50 and 55-64 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/272/006</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

### DETAILED ACTION

This action is in response to the applicant's communication filed on 11/27/2006.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-11, 19, 24-49, 55-64 are rejected under 35 U.S.C. 102(e) as being Jung et al by (US 2002/0018912 A).

Jung et al teaches a method of depositing a layer for electroluminescent device:  
Jung teaches successively forming a first function region comprising hole transportation layer of first organic compound on an electrode, organic emission layer and organic electron transportation layer. Jung et al specifically teaches simultaneous irradiation of ultraviolet light generated by lamp during deposition, wherein ultraviolet light having wavelength in the range of 100-200nm or 254 nm to 320 nm to result compact film formation (fig.2 and related description and para0062). Jung et al teaches direction of irradiation is from the same direction of evaporating of the first and second organic compound, wherein evaporation source from which the first organic compound is evaporated is different from an evaporation source from which the second organic

Art Unit: 2812

compound is evaporated, and wherein first organic compound source is evaporated from first evaporation source and second organic compound is evaporated from second evaporation source (see fig. 1 and related description). Jung also discloses light source, first evaporation source and second evaporation source are all in same plane (see para0036-0039, para0077. Jung et al clearly discloses simultaneous deposition of more than two organic compounds in vacuum deposition chamber, which inherently results mixed region of first organic compound and second organic compound, which is essential for making efficient electroluminescent devices giving emission at desired wave lengths (see para 0036 - para 0039, para0076-0077 and claim 9).

Jung et al specifically teach forming an organic thin film by simultaneous deposition of organic compound A and organic compound B and simultaneous irradiation by means of vacuum deposition (fig.1), wherein the organic thin film prepared by polymerization of the compound formula 1 having at least one acetylene group. Jung et al also teach forming electroluminescent device can have hole transportation layer, emission layer and electron transport layer (fig2), wherein transportation layer or emission layer formed by depositing at least one compound in formula 1, which suggest that transportation layer or emission layer can have at least one organic compound A or B or together, which satisfy the instant claimed process.

With respect to new claims 55-57,61 Jung et al inherently discloses the mixed region through irradiation with to form a compacted mixed region comprising the first organic compound and second organic compound because uses UV irradiation and using the first compound and second compound to form mixed region. Jung et al,

Art Unit: 2812

teaches forming organic electroluminescent device by depositing similar compounds such as  $\text{Alq}_3$  to form emission layer or transport layer (para 0026, 0076) as similar to the instant invention( page, 35, line 9) . Jung et al teaches ultraviolet irradiations gives curing (polymerization), which is similar to the instant invention. Unless the organic compounds are different in the instant invention from the invention of Jung et al, the result i.e., forming mixed region is same in both Jung et al and instant invention because both Jung et al and instant invention uses first and second organic compounds along with UV radiation for forming hole transpiration layer and emission layer.

Also, in forming electroluminescent organic devices, the emission layer is a grading organic layer with mixed organic compounds, which are used to form hole transportation layer and electron transportation layer, see for evidence Fig. 1 layers 29, 31, 30 in So et al (US 5, 925,980).

With respect to claims 58-60, 62-64 Jung et al teaches the wavelength of the UV radiation is 254 nm - 300 nm. (para 0062)

### ***Response to Arguments***

Applicant's remarks filed on 11/27/2006 have been noted. Applicant argues that Jung's polymer thin film is not a mixture and does not have a the properties of mixture because once polymerization has occurred to form polymer thin film. Applicant argues that Jung does not teach or suggest forming a mixed region comprising a mixture of first and second organic compounds during irradiation with light in the deposition chamber as recited in claims 1, 19 or compact film by activating organic compound to form

Art Unit: 2812

compact film as recited in claim 33 and 44. However, Jung et al specifically discloses forming organic electroluminescent device as similar to instant invention by using UV laser. Jung gives a choice of forming either organic layer by using single organic compound or mixed organic layer by simultaneous deposition of two or more organic compounds by UV laser irradiation. In view of the options given in the invention of Jung et al, and depending on the final electroluminescent device with desired characteristics, for example, luminous efficiency, the combination of deposition of layer with single compound or mixed layer with simultaneous deposition of two or more organic compounds in vacuum deposition chamber furnished with laser, it is inherent in the invention of Jung et al results mixed region of first organic compound and second organic compound (see para 0036, last three lines).

Applicant argues that How the reference by So is applied to reject the claims. So is shown to see how intermixed region is helpful to improve the efficiency of the OLED. So teaches intermixed region between hole transport and electron transport layer result smooth interface and improves the efficiency of the device. So is merely applied to show the advantage of intermixed region for the device. So is shown as evidentiary document how the emission layer is a grading organic layer with mixed organic compounds, which are used to form hole transportation layer and electron transportation layer, see for evidence Fig. 1 layers 29, 31, 30 in So et al (US 5, 925,980).

Conclusively In electroluminescent devices active device layers in the invention of Jung et al are made of either single compound or mixed compound or in combination

Art Unit: 2812

of both by using laser. As similar to instant invention, claims are not limited to any particular organic compounds. Jung inherently teaches mixed region by irradiation by laser because similar material are treated similar process in both instant invention and Jung et al, which organic compounds with light irradiation with wavelength in the range of 254-300 nm.

Claims 20, 51-54 are allowed.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Savitri Mulpuri whose telephone number is 571-272-1677. The examiner can normally be reached on Mon-Fri from 8 a.m. to 4.30 p.m.

Art Unit: 2812

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael, Lebentritt, can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Savitri Mulpuri  
Primary Examiner  
Art Unit 2812